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Automatic mucosa detection in video capsule endoscopy with adaptive thresholding

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Abstract

© Springer India 2016.Video capsule endoscopy (VCE) is a revolutionary imaging technique widely used in visualizing the gastrointestinal tract. The amount of big data generated by VCE necessitates automatic computed aided-diagnosis (CAD) systems to aid the experts in making clinically relevant decisions. In this work, we consider an automatic tissue detection method that uses an adaptive entropy thresholding for better separation of mucosa which lines the colon wall from lumen, which is the hollowed gastrointestinal tract. Comparison with other thresholding methods such as Niblack, Bernsen, Otsu, and Sauvola as well as active contour is undertaken. Experimental results indicate that our method performs better than other methods in terms of segmentation accuracy in various VCE videos.

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Keywords

Endoscopy, Mucosa detection, Segmentation, Thresholding, Video capsule